

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

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1. (Currently Amended) A method for measuring thickness of one or more layers of an optical disc that includes a spacer layer and a cover layer by using an interference effect of an optical disc layer, the method comprising the steps of:

detecting an intensity of a reflective light according to a plurality of wavelengths as a first spectrum of data;

converting the first spectrum data into a second spectrum of values that exhibits variation as a function of wavelength and refractive index;

transforming the second spectrum using a Fast Fourier Transform; and

detecting a thickness of one or more of the spacer layer and the cover layer, respectively, based upon the transformed spectrum.

2. (Previously Presented) The method of claim 1, wherein in said converting step, the second spectrum is a function of $n(\lambda)/2\lambda$, where n is the index of refraction and λ is wavelength.

3. (Currently Amended) The method of claim 1, wherein the ~~the~~ spacer layer has a refractive index n_1 and the cover layer has a refractive index n_2 different from the refractive index n_1 .

4. (Previously Presented) The method of claim 3, wherein peak values of intensity of the transformed spectrum at positions d_1 and d_2 indicate d_1 and d_2 as being the thicknesses of respective layers.

5. (Previously Presented) The method of claim 1, wherein in said converting step, an equation for processing the first spectrum is expressed as following:

$$2n(\lambda)d = m\lambda$$

$$2n(\lambda + \Delta\lambda)d = (m - 1)(\lambda + \Delta\lambda)$$

wherein, d is a thickness, n is a refractive index of the optical disc layer, λ is wavelength, and m is integer value.

6. (Canceled)

7. (Previously Presented) The method of claim 1, wherein the transformed spectrum represents intensity as a function of a length (d) of an interference area, and the length d further represents a thickness of a given layer.

8. (Previously Presented) The method of claim 1, wherein the second spectrum varies as a function of a first factor that is the index of refraction and a separate second factor that is the wavelength.

9. (Previously Presented) The method of claim 8, wherein the second spectrum varies as a function of the following equation,

$$n/b\lambda$$

where λ is the wavelength and is the second factor,

where n is the index of refraction and is the first factor and is itself a function of λ , and

where b is an integer.

10. (Previously Presented) A method for measuring thickness of one or more layers of an optical disc by using an interference effect, the method comprising:

measuring intensities of reflected light according to a plurality of wavelengths and providing the same as a first set of intensities that vary as a function of wavelength;

converting the first set into a second set of intensities that varies as a function of the index of refraction as well as the wavelength;

frequency-transforming the second set; and
determining a thickness of one or more layers of the optical disc based upon the transformed set.

11. (Previously Presented) The method of claim 10, wherein the second spectrum varies as a function of a first factor that is the index of refraction and a separate second factor that is the wavelength.

12. (Previously Presented) The method of claim 11, wherein the second spectrum varies as a function of the following equation,

$$n/b\lambda$$

where λ is the wavelength and is the second factor,

where n is the index of refraction and is the first factor and is itself a function of λ , and

where b is an integer.

13. (Previously Presented) The method of claim 1, wherein, for said converting step, the refractive index is dependent on wavelength.

14. (Previously Presented) The method of claim 10, wherein, for said converting step, the refractive index is dependent on wavelength.

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